

SAE ARIZONA • NEVADA SECTION

MEETING: Apr. 22

Section Web Site: www.saearizona.org - Sign up for your newsletter on our website.

HIGHLIGHTS...



- **The Leaf Experience**
- **Electric City-EV Battery Sec.Use (Coffee Talk by Craig Pike)**
- **message from Chair**
- **Recap of March Meeting**
- **Meeting Location Map**
- **AWIM in AZ**
- **SAE Announcements**
- **Meeting Schedule**

The Leaf Experience

by

Barry Koval

The Nissan Leaf is much more than just a battery electric vehicle (BEV). It represents both a massive paradigm shift and an opportunity to make our industry sustainable. The key attributes that enable this are:

- Affordable: \$32,780 base price (before \$7.5K federal and \$5K CA incentives)
- Useable: 5 Passenger capacity, 100 mile range, 90 mph top speed
- Real: Mass production. Sales start December 2010.

The Leaf actually shifts many paradigms, let's start with sustainability. CO2 emissions are cut by more than half compared to conventional ICE's (Internal Combustion Engines). That is based on the current mix of fuel sources used to generate electricity; with moves toward greener power sources CO2 emissions could be reduced to nearly zero. The fact that electricity is generated from a variety of sources is also a great advantage over ICE's reliance upon liquid fuels. Even if oil supplies are disrupted or prices skyrocket, electric power generation is far less vulnerable.

Another paradigm to shift is vehicle performance. First of which is quietness. Gone are the days of rough, loud engines barking as a grade is climbed. The absence of engine noise is a very strong attribute that must be experienced to be fully appreciated. Another performance attribute that changes noticeably is handling. Moving the center of gravity low and toward the center of wheelbase enhances stability. Driving the Leaf at Waterman Canyon (winding mountain road in San Bernardino, CA) I



can attest to its high limits and confidence imparted to the driver.

Nissan has created not just a car with a 24kWh battery and 80kW motor, but a new way of doing business and conducting life. Please join us as we discuss – it will be a lot like having tea while we charge.

Barry Koval

Barry Koval is Senior Project Engineer for Nissan Technical Center North America. He is the marketability engineer for the Leaf program in North America. He has nearly 30 years industry experience, 24 years with Nissan, the last 19 of which have been at the Arizona Test Center. Graduated from the Polytechnic Institute of New York University.



Electric City - EV Battery Secondary Use by Craig Pike (Coffee Talk)

When you're finished with the countless batteries the kids need for their remote control cars, you just throw them away, right? Of course not! And when the battery is over 500lbs and isn't used up yet, you'd never want to.

Beyond the excitement of driving a car that never has to stop for gas, imagine an "Electric City". In the Electric City, your EV battery wouldn't go into the "Leaf Pile", it would be used to store energy another way like building bricks in the city. Reusing the batteries is a lot like leasing a car. You pay for what you use. If 80 percent of battery capacity is still available when you sell, you should only pay for 20 percent right? With 2nd use, the payoff for EV's quickly comes into reach and the city powers up!

(continued on page 4)

DATE	TIME	LOCATION	COST With Dinner	Presentation Only
Apr. 22 2010	Social	- 6:00 pm	Members - \$22	\$10
	Dinner	- 6:30 pm	Guests - \$27	\$10
	Presentation	- 7:30 pm	Students - \$12	no charge
RSVP by Monday April19.			info@saearizona.org	

Message From the Chair

Our March meeting received good attendance. We had 30+ people; mostly members and a few guests. Our Coffee Talk Speaker, Mr. Ray Berg, VP Engineering with Perform Air, gave a very informative review on how to do and not to do business in Asia, China in particular. Personally, I found quite fascinating learning about small Gilbert company that is aggressively expanding overseas.



Michael Kremer, Section Chair

Our main speaker Patrick Oakley described in detail the not-so-distant future of Phoenix-Mesa Gateway Airport. It was nice to hear that, despite the current economic downturn development is well underway, and people involved seem determined to stick with the original plan and turn the area into regional transportation and employment center.

Both of our guest speakers work in the airline industry and often happen to be in the same location while at work. However, it took SAE meeting with its casual atmosphere for them to meet and talk for the first time ever. I want to point out again the number of professional networking opportunities our meetings provide, and encourage our members, especially the ones in the early to mid-career stages, to attend as many meetings as their schedules allow.

Our next meeting we will present the latest and greatest from the electric car world - Nissan Leaf.

This hundred-percent electric car will be the world's first mass-marketed EV and should be available for purchase later this year.

Some recent news from the automotive industry: according to the latest headlines, American consumers returned to showrooms during March, driving overall sales to their best levels since last summer's peak around Cash for Clunkers. Automakers sold a total of 1,065,555 vehicles in the United States last month. Similar encouraging numbers have been reported in Europe and China markets. Let's hope that this trend will continue and leads to full recovery in the industry and more vehicle engineering jobs.

Automotive technology keeps moving in the right direction. The latest Vehicle Dependability Study from J.D. Power and Associates says that overall vehicle dependability has improved 7 percent, and for the first time in more than a decade.

General Motors Co.'s Cadillac DTS was the study's leader, while Porsche was the overall nameplate leader and Ford Motor Co.'s Lincoln brand climbed six rungs since last year to finish in second place.

I will see you on April 22nd.

Michael Kremer, PE

Recap of March Meeting by Steve Atkins

Our March meeting featured Mr. Patrick Oakley, Community Relations Coordinator for the Phoenix-Mesa Gateway Airport (AZA). Phoenix-Mesa Gateway Airport is owned and operated by the Phoenix-Mesa Gateway Airport Authority that includes the City of Mesa, City of Phoenix, Town of Gilbert, Town of Queen Creek, and the Gila River Indian Community.



L-R: Patrick Oakley, Michael Kremer, Ray Bergl.

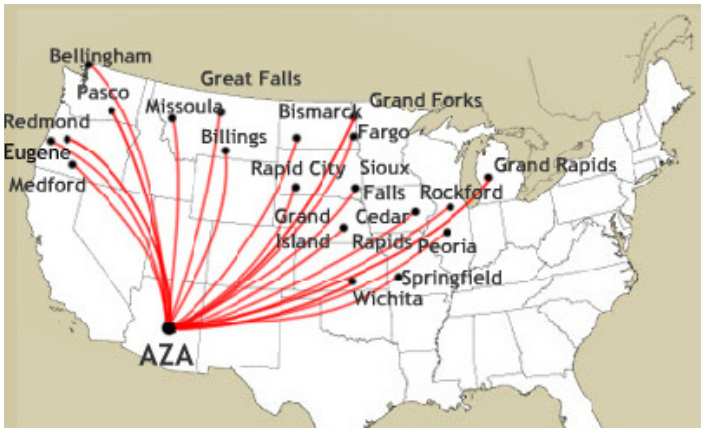
The Phoenix-Mesa Gateway Airport began life in 1941 as Williams Field and re-designated as Williams Air Force Base (WAFB) in January 1948. WAFB was the U.S. Air Force's foremost pilot training facility, graduating more student pilots and instructors than any other base in the country and supplying 25 percent of the Air Force's pilots annually. WAFB provided training for a variety of fighter and bomber aircraft including the AT-9, AT-17, P-38, AT-6, B-17, B-24, P-51, P-47, F-86, F-100, T-37 and T-38.

WAFB was closed in 1993 and created a loss of more than 3,800 jobs and \$300 million in annual economic activity. As the base was being shut down, it was decided that, with the growing traffic at Sky Harbor International Airport in Phoenix, an alternative airport would be needed in the area. The 3000 acre airport extended its 3 runways to over 10,000 feet to accommodate jets, and the facility reopened in 1994 as Williams Gateway Airport.



In a press release on September 17, 2007, the Williams Gateway Airport Authority governing board approved a name change for Williams Gateway Airport effective October 15, 2007. The new name is now Phoenix-Mesa Gateway Airport. Reasons behind the name change are "to have the airport reach its highest potential in creating jobs and commercial service development.

Today, the airport serves as a regional base of opera-



Routes flown from Gateway Airport.

tions for Allegiant Air, which fly's to some 20 cities throughout the U.S. Allegiant, celebrated it's 1 millionth passenger in January of 2010.

Phoenix-Mesa Gateway Airport is also developing as an international aerospace center with aircraft maintenance, modification, testing and pilot training. Currently, more than 35 aviation companies operate at the airport, generating over \$500 million in annual economic activity; directly supporting over 4,000 jobs.

The airport has over 1 million square feet of buildings, which house a wide variety of tenants including The Boeing Company (structural repair facility, T38 modification program, and flight test programs), Native American Air Ambulance, Ratts Air Service (aircraft painting), Jetstrip (aircraft paint stripping), Airline Transport Professionals (flight training), Fighter Combat International (recreational and training flights), Chandler-Gilbert Community College (aircraft maintenance training), University of North Dakota (flight training), Mesa Pilot Development (flight training), L3 Communications, and U.S. Positioning.

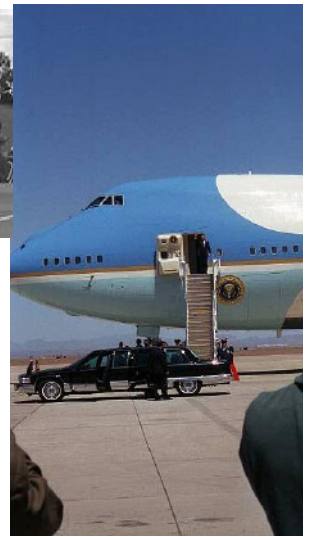


The Airport's most common users include all Phoenix/Mesa metropolitan area flight schools, U.S. Marshals, 161st Arizona Air National Guard (KC-135s), Davis Monthan AFB (C-130s and F-16s), USAF Air Training Command (T37s and T38s), America West Airlines (flight training) and a variety of cargo companies and corporate jets. Airport activity is measured in "operations". One "operation" is a take-off or a landing. A "touch and go", where the pilot lands and then takes-off again (commonly done during flight training), is two "operations". In 2006, the control tower at Gateway counted over 280,719 operations and placed as the 39th busiest Tower in the United States (out of 492 ranked



Towers).

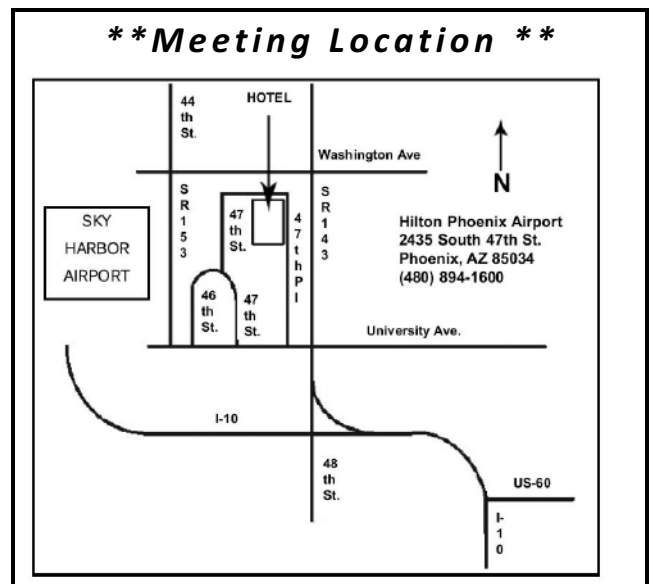
Though limited to its current 3000 acre size, the future of the Phoenix-Mesa Gateway Airport, will see significant growth from an operational and developmental perspective. In 2020, the Airport's master plan forecasts annual landings and take-offs to exceed 338,000 operations and two



President George W. Bush visits Gateway – May 2001

million enplanements (an enplanement is a person boarding an aircraft). For comparison, Phoenix Sky Harbor conducted 545,768 operations in 2002 and handled over 17.6 million enplanements. As the airport's commercial operations increase, the development of a new passenger terminal on the east side of the Airport (along Ellsworth Rd.) will become necessary.

While it is clear that Phoenix Sky Harbor will remain the primary air carrier airport for the Phoenix-Mesa metropolitan area, Gateway will supplement Sky Harbor by handling about 8 percent of the forecasted commercial operations serving the Valley.



AWIM in AZ
by Don Robins

The 'A World In Motion' (AWIM) program in Arizona has been very fortunate to be recognized by the SAE Foundation for the 3rd year in a row. Only one middle school teacher from our team of teachers is recognized each year by SAE with the Gary Dickinson Award for Teaching Excellence. Arizona teachers have won this award for the last 3 years. This year, Matt Miller, Director, SAE Foundation & Pre-College Programs, came to Arizona to present the 2009 Gary Dickinson Award to Karen Rascon and Trish Merrill, the AWIM teachers at Taylor Jr. High in Mesa.

Our SAE AZ-NV Section also sponsored a recognition dinner for all the winning teachers from the last 3 years. Matt Miller and Mike Kremer were able to attend and meet all the teachers.

We have completed AWIM programs at 6 schools this school year, and have one more program scheduled to start the end of April. For more information about the AWIM program, contact Don Robins at drobins1137@msn.com.



Karen Rascon and Trish Merrill receiving the Gary Dickinson Award at Taylor Jr High. Also included in the picture are Don Robins (left), Matt Miller (right), Jon Moss, the AWIM Site Coordinator at Taylor (the tall one) and the Taylor Jr High Principal in the middle.

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Coffee Talk (con. from page 1)

Craig Pike is Senior Project Engineer for EV Durability, Quality and Reliability at Nissan Technical Center North America. He has held several engineering jobs, most recently with Nissan for the last 7 years. Before taking his current position with EVs, he worked in Powertrain Performance for Nissan's full size trucks. Craig graduated from Arizona State with an ME degree in 1994. He spent 2 years in Japan where he met his wife Miyuki. They have two young sons. For fun, Craig likes to build and drive hot rods and classic cars then talk about them on his website, <http://www.MyRideisMe.com>.



Upcoming SAE Events, Conferences, and Symposia

SAE Automotive Refrigerant and System Efficiency Symposium

When: July 13-15, 2010

Where: Xona Suites, Scottsdale, Arizona, USA

Aerospace Manufacturing and Automated Fastening Conference & Exhibition

When: September 28-30

Where: 2010, Wichita, Kansas USA

For event and registration details, please visit the page at: <http://www.sae.org/events/>

Meeting Schedule

April 22	- Nissan EV
May 20	- Student SAE Competition Vehicles Exhibit & AWIM Student/Teacher Presentation



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